Clinical History:

Newborn term baby vomited since birth. The vomiting increased and, at 12 days of age, the baby presented bilious vomiting and abdominal distension. Intestinal transit was normal. The blood analysis showed metabolic alkalosis and hyperbilirubinaemia.

Imaging Findings:

Fig.1: Abdomen X-ray:
We could see double bubble corresponding with dilated stomach and duodenum. There was also some air in the gut. This findings suggest an incomplete duodenal occlusion.

Fig.2: Abdominal ultrasound, axial slice:
The head of the pancreas had an abnormal form of a crocodile head with an open mouth and the duodenum was dilated with fluid. The position of the mesenteric vessels were normal.

Discussion:

The diagnosis of neonatal intestinal obstruction results from the joint analysis of clinical data and information provided by the abdominal X-ray. The clinic is based on the presence or absence of bilious vomiting, abdominal distension and presence of stools. The analysis of the distribution of air in the abdomen by X-ray allows to locate the anatomical position of the obstacle. The image of double bubble with gastric and duodenal distension is pathognomonic of complete duodenal obstruction secondary to a duodenal web, atresia or stenosis, but an incomplete obstruction is also possible. When a typical double bubble sign is seen on an abdominal X-ray with a little air in the gut, this suggests incomplete duodenal obstruction and a different diagnosis must be mentioned: annular pancreas, compressive duodenal duplication, malrotation etc. [2]

The annular pancreas is a rare cause of extrinsic duodenal obstruction representing 10% of duodenal obstructions. [1] It is due to an abnormality during embryogenesis (5th week) with, during the rotation, a pancreatic tissue ring remaining around the duodenum. Symptoms do not always appear in the neonatal period and vary according to the degree of duodenal compression. The annular pancreas may be associated with other congenital anomalies such intestinal malrotation or cardiac malformations. Chromosomal abnormalities are present in 1/3 of cases, the most frequent being trisomy 21 (or 18 and 13). Antenatal diagnosis by ultrasound is possible by detecting a duodenal distension on ultrasound. [3]

Intestinal obstruction in a newborn can be a surgical emergency and ultrasound should be performed as a first line
tool to analyse the position of the mesenteric vessels and exclude a midgut volvulus searching for the “whirlpool” sign. If the mesenteric vessels are normal, we must examine the antro-pyloro-bulbar region and pancreas. In our case, the head of the pancreas has an abnormal form of a crocodile head with an open mouth and the duodenum is dilated with fluid. This image is highly suggestive of annular pancreas.

At birth, a gastric tube allows to drain the digestive tract and then the treatment (duodenojejunval duodenostomy) is surgical in the neonatal period.

Any neonatal intestinal obstruction must include an X-ray and an abdominal ultrasound at birth to look for abnormalities of solid organs. We should consider the annular pancreas in cases of incomplete duodenal obstruction.

The congenital pancreatic anomalies are diverse: pancreas divisum, annular pancreas, congenital shortening of the pancreas and choledochal cysts.

**Differential Diagnosis List:** Annular pancreas, Duodenal atresia/stenosis, Duodenal web, Midgut volvulus, Duodenal duplication

**Final Diagnosis:** Annular pancreas

**References:**


Description: Double bubble corresponding with dilated stomach and duodenum can be seen. There is also some air in the gut. **Origin:** Hanquinet S, Ped Unit, DISIM, Geneva, Switzerland
Description: The head of the pancreas has an abnormal form of a crocodile head with an open mouth and the duodenum is dilated with fluid. The position of the mesenteric vessels is normal. Origin: Hanquinet S, Ped Unit, DISIM, Geneva, Zwitserland